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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,106	02/13/2002	John Robert Smith	H-204604	6949
7580 11/05/2003 CARY W. BROOKS General Motors Corporation Legal Staff, Mail Code 482-C23-B21 P.O. Box 300 Detroit, MI 48265-3000			EXAMINER BAREFORD, KATHERINE A	
			ART UNIT 1762	PAPER NUMBER

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/075,106

Applicant(s)

SMITH ET AL.

Examiner

Katherine A. Bareford

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers Claim 14 is canceled

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The amendment and terminal disclaimer filed October 14, 2003 has been received and entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being obvious over Byrnes et al (US 6610369) (this patent matured from Application No. 10/022,322) in view of Rabiei et al ("Microstructure, Deformation and Cracking Characteristics of Thermal Spray Ferrous Coatings" Article) (hereinafter Rabiei et al).

The applied reference to Byrnes has common inventors (Larry Byrnes and Martin Kramer) with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference,

prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Byrnes teaches the method of thermally spray coating a cylinder wall of a metal engine block by advancing a feed wire of a ferrous based material into an HVOF device, supplying a high velocity jet flow of gaseous fuel to the high temperature zone of the HVOF device, supplying a high velocity jet flow of oxygen to the high temperature zone of the HVOF device, combusting the oxygen and fuel to generate sufficient heat in the high temperature zone to melt the tip end of the feed wire in the high temperature zone and spraying the molten feed wire material onto the cylinder wall surface of the engine block to form a ferrous based coating thereon, and controlling the flow of oxygen relative to the flow of gaseous fuel to provide an oversupply of oxygen in excess of the oxygen required for stoichiometric combustion of the gaseous fuel, and reacting the excess oxygen with an associated fraction of the wire feed material in the high temperature zone to combust the associated fraction of the wire feed material as a source of solid fuel to provide a supplemental source of heat to the high temperature zone of the HVOF device, and where the amount of oversupply of oxygen is sufficient to increase the deposition rate of the molten metal on the cylinder wall by more than twofold than that deposited when oxygen is

supplied at the level required for stoichiometric combustion of the gaseous fuel. See claim 1 of Byrnes. claim 2 of Byrnes corresponds to claim 2 of the present application. Claim 7 of Byrnes corresponds to claim 3 of the present application. Claims 9-11 of Byrnes correspond to claims 4-6 of the present application. Claims 5 and 14 of Byrnes provides the teachings of claims 10-11 of the present application. Claims 6 and 15 of Byrnes provides the teachings of claims 12-13 of the present application.

Byrnes teaches all the features of these claims except the additive material of yttrium, calcium, magnesium, titanium, zirconium, hafnium, cerium, or lanthanum (claim 1) and its amounts and actions (claims 7-9).

However, Rabiei et al provides a study of HVOF sprayed ferrous based coatings. See the Abstract. Rabiei et al teaches that ferrous based coatings are commonly used as protective bore coatings on aluminum alloy cylinder blocks, where the ferrous based material in the form of a wire is thermally sprayed onto the bore surface. See page 152. The resultant coating is a composite of the alloy with oxides resulting from oxidation during deposition. See page 152. Rabiei analyzed a variety of such coatings. See page 155 and Table 1 (page 153). As shown by Table 1 and page 155, the materials are predominately Fe with small amounts of other materials, including various amounts of aluminum and various amounts of oxides. For example, 2.1 or 2.6 wt % aluminum can be present. Furthermore, ranges of 0.9 to 12 wt% oxides (of Fe and/or Al) can be present. See Table 1 and page 155. Also, magnesium can be present in an amount between 1.05 wt% and 0.01 wt %. Table 1. As well, silicon can be provided in small amounts. Table 1.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Byrnes to provide magnesium amounts as suggested by Rabiei et al with an expectation of forming a desirable coating, because Byrnes teaches HVOF spraying ferrous based materials (with an aluminum component) onto cylinder bores with a controlled oversupply of oxygen so as to form a desirable supplemental source of heat through reaction with the wire, and Rabiei et al teaches that a desirable ferrous based coating material for HVOF spraying cylinder bores can be formed so that the resulting coating also has aluminum and/or magnesium and/or aluminum/iron oxides. For instance, Rabiei et al teaches that magnesium can be present in amounts of less than 1 wt % (see Table 1). As to the reaction of the additive material with impurities in the coating/sulfur, it would have been obvious that such a reaction would occur as a matter of course, given that the references provide the claimed materials, oxygen and high temperatures of HVOF processes.

4. Claims 1-13 are rejected under 35 U.S.C. 103(a) by way of 102(f) as being unpatentable, because applicant did not invent the claimed subject matter. As discussed in the rejection above, all of the features of the invention are provided by the combination of Byrnes and Rabiei et al.

5. The rejection of claim 14 under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art in view of Grylls et al (US 6485792), Lindblom (US 4687678), Rabiei et al ("Microstructure, Deformation and Cracking Characteristics of Thermal Spray Ferrous Coatings" Article) (hereinafter Rabiei et al) and Baranovski et al (US 6245390) is withdrawn due to applicant's cancellation of the claim.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. The rejection of claims 1-14 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 and 5-10 of copending Application No. 10/022,322 in view of Rabiei et al is withdrawn due to applicant's filed terminal disclaimer (see *Terminal Disclaimer* section below).

Terminal Disclaimer

8. The terminal disclaimer filed on October 14, 2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of application 10/022,322 (now US Patent 6610369) has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

9. Applicant's arguments filed October 14, 2003 have been fully considered but they are not persuasive.

Applicant has argued that the filing of the Terminal Disclaimer overcomes the rejection of claims 1-14.

The Examiner has reviewed this argument, however, the 35 USC 103 rejections of claims 1-13 (discussed in the *Claim Rejections - 35 USC § 103* section above) is maintained. While the filed Terminal Disclaimer overcomes the double patenting rejection of claims 1-13, it does not overcome the pending 35 USC 103 rejections, since the filing date of Byrnes precedes that of the filing date of the present application. Applicant has not argued as to the combination made by the Examiner in the 35 USC 103 rejection. Furthermore, applicant has not provided any of the showings discussed in the rejection using Byrnes above to overcome the rejection --

483 "The applied reference has ^ccommon inventors (Larry Byrnes and Martin Kramer) with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2)."

As a result, the 35 USC 103 rejections are maintained.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Please note that the 35 USC 103 rejection using Byrnes et al (US 6610369) resulted from the maturing of Application Serial No. 10/022,322 into a patent, and that the basis of the rejection remains the same as that for the provisional rejection using 10/022,322.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (703) 308-0078. The examiner can normally be reached on M-F(7:00-4:30) First Friday Off.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


KATHERINE A. BAREFORD
PRIMARY EXAMINER
GROUP 4100 1700